AMENDMENTS TO THE CLAIMS

Please amend claims 1-16 and 19-24, cancel claims 17, 18, 25 and 26, and add new claims 27 and 28 as follows:

1. (currently amended) A semiconductor optical waveguide device, comprising a semiconductor layer having an upper surface, and a lower surface which is defined by a lower confinement layer, the semiconductor layer having formed therein:
   (a) a waveguide;
   (b) at least one recess adjacent to the waveguide and extending from the upper surface of the semiconductor layer;
   (c) at least one doped region, at least part of which is situated between ~~a said~~ the recess and the lower confinement layer; and
   (d) at least one trench adjacent to ~~a said~~ the doped region and the recess and situated on an opposite side thereof to the waveguide, wherein the ~~(or each)~~ trench extends from the upper surface of the semiconductor layer.

2. (currently amended) A device according to Claim 1, wherein the ~~(or each)~~ trench is deeper than ~~its~~ the adjacent recess.

3. (currently amended) A device according to Claim 1 ~~or Claim 2~~, ~~in which~~ wherein the ~~(or each)~~ recess is spaced apart from ~~its~~ the adjacent trench.

4. (currently amended) A device according to Claim 1 ~~or Claim 2~~, ~~in which~~ wherein the ~~(or each)~~ recess is not spaced apart from ~~its~~ the adjacent trench, so that the recess and the trench comprise a single larger feature.

5. (currently amended) A device according to ~~any preceding claim~~Claim 1, ~~in which~~ wherein the ~~(or each)~~ doped region extends substantially to the lower confinement layer.

6. (currently amended) A semiconductor optical waveguide device, comprising a semiconductor layer having an upper surface, and a lower surface which is defined by a lower confinement layer, the semiconductor layer having formed therein:

(a) a waveguide;

(b) at least one doped region extending substantially to the lower confinement layer; and

(c) at least one trench adjacent to, and spaced apart from, ~~a said~~ the doped region and situated on an opposite side thereof to the waveguide, wherein the ~~(or each)~~ trench extends from the upper surface of the semiconductor layer.

7. (currently amended) A device according to Claim 6, ~~any preceding claim, in which~~ wherein the ~~(or each)~~ trench extends substantially to the lower confinement layer.

8. (currently amended) A device according to Claim 6, ~~any preceding claim, in which~~ wherein the waveguide is a rib waveguide, ~~comprising~~ having a rib portion.

9. (currently amended) A device according to Claim 6, ~~any preceding claim, in which~~ wherein the semiconductor layer comprises silicon.

10. (currently amended) A device according to Claim 6, ~~any preceding claim, in which~~ wherein the lower confinement layer is a confinement layer for electrical charge carriers.

11. (currently amended) A device according to Claim 6, ~~any preceding claim, in which~~ wherein the lower confinement layer is a confinement layer for an optical mode propagated by the waveguide.

12. (currently amended) A device according to Claim 6, ~~any preceding claim, in which~~ wherein the lower confinement layer is an electrically insulating layer.

13. (currently amended) A device according Claim 6, ~~to any preceding claim, in which~~ wherein the lower confinement layer comprises silica.

14. (currently amended) A device according to Claim 6, ~~any preceding claim, in which there is~~ further comprising a substrate layer below the lower confinement layer.

15. (currently amended) A device according to Claim 14, ~~in which~~ wherein the substrate layer comprises silicon.

16. (currently amended) A device according to Claim 6, ~~any preceding claim, in which there are~~ further comprising two of said doped regions, the doped regions being situated on opposite sides of the waveguide.

17. (cancelled)

18. (cancelled)

19. (currently amended) A device according to Claim 8, ~~18 when dependent upon Claim 8, in which the~~ further comprising an additional doped region ~~is~~ situated in the rib portion of the rib waveguide.

20. (currently amended) A device according to Claim 6, ~~any preceding claim, in which there are~~ further comprising two of said trenches, the trenches being situated on opposite sides of the waveguide.

21. (currently amended) A device according to Claim 16, ~~or any claim dependent thereon, in which~~ wherein the doped regions comprise n-doped and p-doped regions.

22. (currently amended) A device according to Claim 6, ~~any preceding claim, which comprises~~ further comprising a p-i-n diode.

23. (currently amended) A device according to Claim 22, ~~which comprises~~ wherein the p-i-n diode comprises a lateral p-i-n diode.

24. (currently amended) A device according to Claim 6, ~~any preceding claim, which comprises~~further comprising an optical modulator.

25. (cancelled)

26. (cancelled)

27. (new) A device according to Claim 2, further comprising two of said recesses, the recesses being situated on opposite sides of the waveguide.

28. (new) A device according to Claim 1, further comprising an additional doped region.